REMARKS

Examiner Shrinivas H. Rao is thanked for thoroughly reviewing the instant application and for examining the Prior Art.

Claims 1-24 have been cancelled, claims 25-28 are currently pending in the Application.

Favorable reconsideration of this application in light of the above amendments and the following remarks is respectfully requested.

Claim rejections - 35 U.S.C. § 112

Reconsideration of the rejection of claims 25-28 under 35 U.S.C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is respectfully requested based on the following.

The Examiner is thanked for pointing out the various problems in the claims. The claims 25-28 have been carefully reviewed and amended to correct those problems the Examiner pointed out, in addition to others. All claims are now believed to be in allowable condition.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claims 25-28 under 35 U.S.C 112, second paragraph, be withdrawn.

Claim rejections - 35 U.S.C. § 102

Reconsideration of the rejection of claims 25-28 under 35 U.S.C 102(b), as being anticipated by Katoh (US Patent 5,141,896) is respectfully requested based on the following.

"Similar", a term used by Examiner to equate the instant claimed invention with the Katoh invention, has the meaning of "like, resembling exactly corresponding in shape, without regard to size".

Applicant respectfully submits that this is not the case for Figs. 1-5 of Katoh and Fig. 8(a) of the instant invention, for the following reasons.

Fig. 8(a) of the instant invention shows a three dimensional view of the structure created by the instant invention, with metal contacts 12, there-over created three layers of dielectric in which perpendicularly intersecting trenches, filled with air, have been created, over the surface of which a metal pattern 28 is provided.

Katoh, by contrast with the claimed instant invention, provides for overlying layers of interconnect metal, such as layers 2 and 6, Fig. 1 of Katoh, the overlying and adjacent layers spatially intersect separated by a "crossing point" 3 of inorganic insulating film.

Further, by contrast, the instant invention provides a compound layer of dielectric, layers 14, 18 and 30 of Fig. 8(a), creating trenches in the overlying layers of dielectric filled with air so that first level metal 12 can be separated from second layer metal 28 by a low-k dielectric constant layer of IMD.

From the above provided detail, Applicant respectfully submits that Katoh does not provide for, as specified in claim 25 of the claimed instant invention:

1. a first network of nitride filled trenches formed in a first level of dielectric, the first level of dielectric having been deposited on the surface of the substrate

2. a second network of nitride filled trenches formed in a second level of dielectric, the second level of dielectric having been deposited on the first level of dielectric, whereby the second network of nitride filled trenches is in physical contact with and intersects with the first network of nitride filled trenches

3. a first thin layer of oxide deposited over the second layer of dielectric

4. openings having been etched in the first thin layer of oxide, the openings to align with intersects between the first network of nitride filled trenches and the second network of nitride filled trenches

5. the nitride having been removed from the second network of trenches and the nitride having been removed from the first network of trenches, and

6. a second thin layer of oxide deposited over the first thin layer of oxide, thereby closing the openings in the first thin layer of oxide.

Applicant kindly suggests, based on the above presented arguments, that claim 25, and dependent claims 26-28, are unique and therefore patentable over the Katoh.

Some of the more salient differences between the instant claimed invention and Katoh are summarized following:

- Katoh provides for crossing points for interconnections of semiconductor devices, the instant invention provides (mechanically stable) air gaps between metal lines
- Fig. 1 of Katoh shows a first level interconnect (level 1) over which a second level (level 6) of interconnect is created and separated by the interconnections of insulating film; the instant invention, provides for trenches in overlying layers of dielectric, the trenches being filled with air
- the metal interconnects of the instant invention are separated by a compound layer of dielectric, due to the

special process of the invention the trenches are filled with air, and

- the conductive layers of interconnects of the instant invention are separated by (multiple) layers of dielectric in order to create a dielectric of low dielectric constant; by contrast, the conductive layers of the Katoh invention are overlying and perpendicularly intersecting and are separated by an insulating film for the obvious reason that the overlying conductive layers would otherwise form electrical shorts there-between.

Katoh does not provide for overlying and perpendicularly intersecting trenches, which have been vacated of the therein contained semiconductor material.

Katoh provides for overlying, perpendicularly intersecting, layers of metal which are (by necessity) separated by a layer of insulation. Katoh does not provide for a first and a second layer of oxide, the first to enable creating holes there-through so that the disposable material can be removed from the trenches, the second to close the created air space after the trenches have been opened.

Neither the trenches as used by the instant invention nor the air spaces inside a layer of dielectric that separates interconnect traces, nor the first created openings (removing material contained in the trenches) and the closing of these openings overlying the trenches is provided by Katoh, nor is any reference thereto provided by Katoh.

In light of the foregoing response, applicant respectfully requests that the Examiner's rejection of claims 25-28 under 35 U.S.C 102(b), as being anticipated by Katoh (US Patent 5,141,896), be withdrawn.

Other Considerations

No new independent or dependent claims have been written as a result of this office action, no new charges are therefore incurred due to this office action.

It is requested that should Examiner not find the claims to be allowable that he call the undersigned Attorney at his convenience at 845-452-5863 to overcome any problems preventing allowance.

Respectfully submitted,

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